

Remarks

Claims 1-10 and 16-25 are pending. Claims 11-15 were previously withdrawn. By this Amendment, independent claims 1, 7, 11, and 14 are amended. Although Applicants continue to assert the patentability of the original claims, the present claims are being amended in an effort to facilitate prosecution of this application. Upon entry of the amendment, claims 1-25 will be pending and in condition for allowance. Applicants believe the amendment raises no new issues, nor would it require further searching by the Examiner. Entry of the amendment is within the discretion of the Examiner and is respectfully requested.

Applicants and their representatives would like to thank Examiner Jones and Examiner Piziali for extending them the courtesy of an interview on July 16, 2003 to discuss this case.

In the Office Action mailed May 2, 2003 the Examiner rejected claims 1-10 and 16-25. Claims 1, 3, and 19-20 were rejected under §102(e) to USPN 6,165,598 to Nelson. Claims 1-2, 4 and 16-20 were rejected under §102(e) to USPN 5,854,708 to Komatsu. Claims 2 and 4 were rejected under §103(a) over Nelson as applied to claims 1, 3, and 19-20, and further in view of USPN 5,698,262 to Soubeyrand et al. Claims 5-10 and 24-25 were rejected under §103(a) over Nelson as applied to claims 1, 3, and 19-20, and further in view of Applicant's Disclosure. Claim 3 was rejected under §103(a) over Komatsu as applied to claims 1-2, 4 and 16-20, and further in view of USPN 6,074,981 to Tada et al. Claims 5-8, 10, and 21-25 were rejected under §103(a) over Komatsu as applied to claims 1-2, 4 and 16-20, and further in view of Applicant's Disclosure. Claim 9 was rejected under §103(a) over Komatsu in view of Applicant's Disclosure as applied to claims 5-8, 10 and 21-25 above, and further in view of Tada.

In the present Amendment, Applicants have amended independent claims 1, 7, 11, and 14 to recite a "substantially non-porous" sputtered silica layer. (In view of these amendments and

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the remarks below, Applicants submit that the claims are patentably distinguishable from Nelson, Komatsu, and the rest of the cited prior art, or any combination thereof.

In regard to the rejections based on Komatsu, this reference fails to teach a low-emissivity, water-sheeting coating having an exterior layer of *substantially non-porous* silica. Komatsu teaches a photocatalyzer film positioned beneath a highly porous silica film. Komatsu stresses the importance of providing a porous silica layer, so that organic contaminants entering the pores come into direct contact with the photocatalyzer film. This is emphasized at column 2, lines 45-49, column 4, lines 24-29 and shown in Figure 1B. Komatsu, therefore, teaches against any modification or combination that would not involve a highly porous silica layer.

Porous coatings suffer from several very significant drawbacks. For example, porous coatings can be difficult to keep clean. In particular, dirt, wax, oil, and other contaminants can become encrusted and trapped within the pores of such coatings. With porous *hydrophilic* coatings in particular, these contaminants (especially hydrocarbons like oil and grease, which do not evaporate) clog the pores of the coatings causing their surfaces to become increasingly hydrophobic. This increases the tendency of water on the coating to bead-up, rather than forming into a sheet. To avoid these problems, the present coating employs a silica film that is *substantially non-porous*.

In regard to the rejections based on Nelson, this reference fails to teach an exterior layer of sputtered silica in combination with a pyrolytic dielectric layer, as recited in the claims. Nelson teaches an anti-reflective coating comprising a pyrolytic silica film over a pyrolytic tin oxide film. Nelson teaches applying both of these films by pyrolytic methods (column 5, lines 24-27). Pyrolytic films characteristically are rough while sputtered films are relatively smooth. Rough, pyrolytic films may be advantageous for anti-reflective coatings, as the roughness of

these films may actually increase antireflection. However, pyrolytic films, such as those disclosed in Nelson, are not well suited for use as water-sheeting coatings. For example, dirt and other contaminants can be very difficult to remove from pyrolytic films due to their high surface roughness. Pyrolytic films also tend to exhibit poor abrasion resistance, as rough coatings are particularly vulnerable to being physically abraded. On the other hand, an exterior layer of sputtered silica, as disclosed in the present application, has relatively low surface roughness. Due to the smoothness of the sputtered silica layer, the present coating is particularly easy to clean, particularly easy to keep clean, and particularly abrasion resistant. As can be appreciated, these technical advantages are very important for windows and other glazings.

There is no suggestion whatsoever in the cited art to provide, in a single coating, a *pyrolytic* dielectric layer in combination with a *sputtered* silica layer. Further, the cited art fails entirely to provide any motivation for such a combination. With no appreciation for the technical advantages of providing a pyrolytic dielectric layer in combination with a sputtered silica layer, the claimed combination would necessarily not be obvious to skilled artisans reviewing the cited art. In fact, skilled artisans reviewing these references would consider it completely impractical to deposit different layers of a single coating using different deposition methods. A number of additional items would be required to prepare a single coating wherein layers are applied using different deposition methods, such as at least two different types of deposition equipment (e.g., a sputter coater as well as a pyrolytic coater), at least two different types of raw materials (e.g., sputtering targets as well as gas, liquid, or solids for pyrolysis), etc. Having to provide these additional items and carry out two different types of deposition methods to produce a single coating clearly would not normally be viewed as advantageous by a person of ordinary skill in the art. Therefore, Applicants respectfully submit that the claimed coating clearly is non-obvious over the prior art.

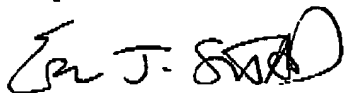
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In view of the foregoing remarks, Applicants submit that the claimed coating is neither anticipated by, nor obvious in view of, the teachings of Nelson and Komatsu. Further, Applicants submit that the rest of cited art fails to provide any teachings that would render obvious the claimed coating. Therefore, Applicants submit that entry of the present amendment will place this application in condition for allowance, and favorable consideration and prompt allowance are respectfully requested.

Independent method claims 11 and 14 (which were previously withdrawn) are currently amended and include the limitations of corresponding product claim 1. Applicants respectfully request that the Examiner rejoin claims 11-15, which were withdrawn in the Office communication mailed on October 31, 2002. Applicants submit that if a determination of an allowable generic claim is issued, for instance the determination of allowability of claim 1 in the present application, claims that are written in dependant form or otherwise include all the limitations of the allowed generic claim should be considered. M.P.E.P. §809.02(c). Therefore, Applicants respectfully request that the Examiner rejoin the method claims of Group II upon a finding of allowability of the claims of Group I.

The Examiner is invited to telephone the undersigned to discuss the present application.

Respectfully submitted,



Eric J. Snustad
Registration No. 45,120
Fredrikson & Byron, P.A.
4000 Pillsbury Center
200 South Sixth Street
Minneapolis, MN 55402-1425
Telephone: (612) 492-7000
Facsimile: (612) 492-7077
Customer No. 22859

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